

THE COUNCIL FOR TOBACCO RESEARCH - U.S.A.

COMMITTEE:

Dr. Little, Chm.
Dr. Lynch
Dr. Reimann
Dr. Loosli
Dr. Sommers

633 THIRD AVENUE
NEW YORK, N. Y. 10017

Application For Research Grant

Activated: 9/1/62
Renewed: 9/1/63
Renewed: 9/1/64
Renewed: 9/1/65
(All above 1 year)
Renewed: 9/1/66
(6 mo. to 3/1/67)
cf. #134
Activated: 7/3/56
Renewed annually to
9/1/61

Date: August 4, 1967

1. Name of Investigator(s): (include Title and Degrees) PRINCIPLE INVESTIGATOR: George O. Gey, M.D., Assoc. Prof. Emer. Surg. & Dir. Finney-Howell Can. Res. Lab. CO-INVESTIGATORS: 1) Chium T. Ling, M.D., Scd., Asst. Prof. Surg. & Phys. Chem.; 2) Mary Reed, Ph.D., Res. Assoc.; 3) Roland Pattillo, M.D., Fellow Surg.; 4) Catherine Armstrong Reznikoff, Ph.D. candidate; 5) Darwin Chee, Grad. Student 6) Tom Depner, Med. Student yr. IV, Res. Assoc.

2. Institution & Address: Finney-Howell Cancer Research Laboratory
Department of Surgery
The Johns Hopkins Medical Institutions
Baltimore, Maryland 21205

3. Short Title of Project: CONTINUATION OF STUDIES ON CHARACTERISTICS OF NORMAL CELL GROWTH IN RELATION TO INVASIVE CARCINOMA, EMBRYONAL TO ADULT FORMS. SUPPORT OF FELLOWSHIPS.

4. Proposed Starting Date: March 1, 1967 (Period March 1-Aug. 31 previously committed). This request to June 30, 1968.

5. Anticipated Duration of this Specific Study:

For the 16-month period given in item 4 with two additional years required.

6. Brief Description of Objectives or Specific Aims:

- 1) Studies on nutrition and environmental factors affecting the growth of cells in culture (Ling & Gey). One prime objective is the evaluation of the nutritional requirements and circumstances under which immunologically competent cells, such as lymphocytes and plasma cells, may be observed to grow and function with the elaboration after challenge of specific antibody.
- 2) Isolation and studies of normal and malignant lung cells--cytology, karyology, low temperature storage properties, mucous secretion and surfactant production (Reed & Gey).
- 3) Factors contributing to functional growth of malignant trophoblast. Chemical and biological characterization of chorionic gonadotropin derived in vitro (Pattillo & Gey).
- 4) Evaluation of cellular transformation in vitro--Role of tumor DNA (Reznikoff & Gey).
- 5) Evaluation of HeLa cell antigens in a study of genetic exchange of information from host cell to virus (Chee & Gey).
- 6) Search for immunoglobulins in cultured lymphoblasts of the MBIII (deBruyn-Gey) line (Depner & Gey).

7. We have already created a number of in vitro cell isolates in attempts to evaluate in vivo cell systems especially in a study of neoplastic processes. Cells in culture permit fundamental studies of growth, differentiation and malignant transformation. Much can also be learned of the functional capacity of normal and malignant cells and may, indeed, provide the best systems for the evaluation of a variety of specific stresses on known histogenic cell types.

7. Give a Brief Statement of your Working Hypothesis:

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8. Details of Experimental Design and Procedures: (Attach Separate Pages)

SEE PROGRESS REPORT.

9. Physical Facilities Available (Where Other than Administering Organization Indicate Geographical Location)

SEE ATTACHED SHEET.

10. Additional Requirements:

Biographical sketches of all principal and professional personnel (append)

SEE ATTACHED SHEETS.

12. List of publications: (Five most recent as pertinent) (append)

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13. Budget (1st year)

A. Salaries (Personnel by names)

Professional
 George O. Gey, M.D., Assoc. Prof. Emer. Surg.
 Chium T. Ling, M.D., Sc.D., Nutri. Biochem. & Asst. Prof.
 Surg. (also Asst. Prof. Physiol. Chem.)
 Mary V. Reed, Ph.D., Research Associate

% time Amount

50%

50%

100%

Technical
 Hedda Linden, Tissue Culture Tech.
 Mary Jo Koryto, Secretary
 Charles Lane, Laboratory Assistant
 Michael Pfeifer, Laboratory & Photog. Asst.
 Franklyn Greene, Laboratory Asst.

100%

50%

100%

100%

Sub-Total

B. Consumable Supplies (list by categories)

Glassware
 Chemicals (including photographic)
 Biologicals (serum, extracts and procurement)
 Cost of animals and care
 Photographic film, plates and prints

\$764.00

600.00

600.00

300.00

400.00

Sub-Total

(6%) Welfare Benefits 2,412.18

\$42,615.12

\$2,664.00

C. Other Expenses (itemize)

Contingency
 Telephone Rental
 Travel

\$ 664.00

1142.10

800.00

Sub-Total

\$2,606.10

D. Permanent Equipment (itemize)

Equipment This amount to cover part of purchase of Technicon Sequential Amino Acid Analyzer (\$12,340.00). Balance from American Cancer Society and other sources

\$3,332.00

\$3,332.00

E. Overhead (15% of A + B + C)

Total

7,182.78

\$58,400.00

Estimated Future Requirements:

Salaries Consumable Suppl. Other Expenses Permanent Equip. Overhead Total

Year 2 - We hope to stress pathogenesis of early tumors such as choriocarcinoma (3 mo. (?)

Year 3 - induction period) in comparative normal versus carcinoma cell studies. More travel expenses needed to retrieve specimens. Total cost similar to pre-t basis.

It is understood that the applicant and institutional officers in applying for a grant have read and found acceptable the Council's "Statement of Policy Containing Conditions and Terms Under Which Project Grants Are Made."

Signature

Director of Project

Signature

Business Officer of the Institution

Telephone

Telephone

Starting & ending when - loose administration

R

for 16 mo beginning Mar 1967

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Other Sources of Financial Support

Net financial support for research from all sources, including own institution, for this and/or related research projects.

Current

Title of Project

"Evaluating Factors Contributing to
Normal and Malignant Cell Growth"
E-273-I

Personnel support in collaborative
studies with Dr. Milton Edgerton's
group on systematic wave length
dependent laser studies

Source

American Cancer Society

W. Alton Jones Foundation, Inc.

Amount

\$66,835.00

\$25,000.00
per year

Duration

7/1/67 -
6/30/68

4 years

Pending

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FACILITIES AVAILABLE

The Finney-Howell Cancer Research Laboratory of the Department of Surgery has its facilities established in the Johns Hopkins Hospital. Its facilities include:

- (a) An integrated and complete tissue culture laboratory including cubicles accommodating our regular group and pre and post-doctoral cancer trainees; also, distilled water autoclave, refrigerator centrifuges, low-temperature refrigerators, special incubators and special observation booths for tissue culture study.
- (b) A Cryobiology storage facility including nitrogen refrigerators and programming equipment.
- (c) A biochemical laboratory for cell nutrition studies and other chemical studies on chemically-defined media, serum proteins, and tissue culture products.
- (d) A motion picture laboratory including:
 - 1) A shock-proof time lapse motion picture assembly and a special time lapse data recording microscope (Reimer and Gey) for cell population studies.
 - 2) A 35 mm. automatic film processor.
 - 3) Dark room facilities.
- (e) Electron microscope laboratory (Siemens-Malsk unit) complete with dark rooms and thin sectioning equipment.
- (f) Adequate animal housing quarters.
- (g) Adequate animal operating rooms.

Some of our projects are carried out in collaboration with others as indicated in the statement regarding interdepartmental collaboration. Of particular importance are the opportunities for collaboration with the Department of Pathobiology (Dr. F. B. Bang) on viruses, the Department of Gynecology and Obstetrics in cooperation with Dr. Hugh Davis and others on studies on the development of invasive carcinoma of the cervix. Of special importance is our access to operative specimens from this and many other hospitals and the excellent esprit de corps here and in many remote places in the world allowing rare specimens to be obtained by our former fellows or other friends. The frequent need for choriocarcinoma and other rare specimens requires that the facilities of others be available and in addition to the Tissue Procurement Divisions of the N.C.I. which are also being used.

Our personnel and special facilities have always been available to others in this and other institutions for conferences and especially for their benefit in allowing procurement of continuous cultures of many different cell types.

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Gey, George Otto, B.S., M.D.

R R R —
 Present Address: Finney-Howell Cancer Research Laboratory, 13th Floor, RU #1
 The Johns Hopkins Hospital, Baltimore 5, Md., 1933.

SCIENTIFIC AND ACADEMIC POSITIONS:

- 1921 - Carnegie Research Assistant, Cold Springs Harbor, L.I., N.Y..
- 1921-22 - Instructor in Zoology, University of Pittsburgh.
- 1922-23 - Guest Research Student, Dept. of Embryology, Carnegie Inst.,
Baltimore, Md..
- 1923-29 - Cancer Research Fellow, Columbia Hospital, Milwaukee, Wisc..
- 1929-33 - Director, Tissue Culture Laboratory, Dept. of Surgery, and
Student Assistant in Surgery, Johns Hopkins Medical School.
- 1929-39 - Guest Research Associate, Dept. of Embryology, Carnegie Inst.
of Washington, Baltimore, Md..
- 1933-38 - Assistant in Surgery, Johns Hopkins Medical School.
- 1933-36 - Surgeon (R), U.S.P.H.S., National Cancer Institute. Director,
Cancer Research - Co-Operative Studies, U.S.P.H.S. and Johns
Hopkins Medical School, Baltimore, Md..
- 1940-41 - Finney-Howell Cancer Research Fellow.
- 1941-45 - Commander, Emergency Medical Services, Office of Civilian Defense,
Eastern District, Baltimore, Md..
- 1938-46 - Instructor in Surgery, Johns Hopkins Medical School.
- 1940-46 - Assistant Director, Division of Cell Physiology, Dept. of Surgery,
Johns Hopkins Medical School.
- 1947- - Assistant Professor of Surgery, Johns Hopkins Medical School.
- 1947- - Director, Finney-Howell Cancer Research Laboratory, Department of
Surgery, The Johns Hopkins Medical School and Hospital.
- 1954 - Lectr. Pathobiology, School of Hygiene and Public Health, The
Johns Hopkins Medical School.
- 1958 - Associate Prof. Surg., The Johns Hopkins Medical School.
- 1966 - Associate Prof. Surg. (Emeritus) Active Duty, The Johns Hopkins
Medical School.

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PUBLICATIONS:

- Gey, George O. (with Lewis, W.H.): Clasmatocytes and Tumor Cells in Cultures of Mouse Sarcoma, Bull. Johns Hopkins Hosp., 34:369, 1923.
- _____ and Thalhimer, W. 1924. Observations on the Effects of Insulin Introduced into the Medium of Tissue Cultures, J.A.M.A., 82:1609.
- _____ with Cron, R.S. 1927. The Viability of the Cast-Off Menstrual Endometrium, Am. J. Obs. & Gyn. 13:645.
- _____ Studies on the Cultivation of Human Tissue Outside the Body. 1929. Wisconsin J. J. 28:11.
- _____ An Improved Technic for Massive Tissue Cultures. 1933. Am. J. Cancer 17:752.
- _____ with Stone, H.B., and Owings, J.C. 1933. Living Grafts of Endocrine Glands, California and Western Medicine, 38: No. 6; 39: Nos. 1 and 2, June, July and August, 1933.
- _____ with Stone, H.B., and Owings, J.C., Living Grafts of Endocrine Glands, Am. Jour. Surgery, New Series, 24:1934.
- _____ with Stone, H.B., and Owings, J.C. 1934. Transplantation of Living Grafts of Thyroid and Parathyroid Glands. Annals of Surg. 262.
- _____ with Stone, H.B., and Owings, J.C. Feb. 1935. Living Grafts of Thyroid and Parathyroid Glands. Surg. Gyn. Obs..
- _____ and M.K. Gey. The Maintenance of Human Normal Cells and Human Tumor Cells in Continuous Culture. 1. Preliminary Report. Cultivation of Mesoblastic Tumors and Normal Tissue and Notes on Methods of Cultivation. Am. J. Cancer 27:45. May 1936.
- _____ with Seegar, G.E., and Hellman, L.M. The Production of a Gonadotrophic Substance (Prolan) by Placental Cells in Tissue Culture. Sci. 88:306 1938.
- _____ with Stone, H.B., and Owings, J.C. 1938. Further Reports on Grafting of Endocrine Glands. Mis-South Post-Graduate Medical Assembly, Memphis, Tenn. Feb. 16, 1938.
- _____ and Bang, F.B.. Experimental Studies on the Cultural Behavior and the Infectivity of Lymphopathia Venerea Virus Maintained in Tissue Culture. Bull. Johns Hopkins Hosp., 45: No.5, Nov. 1939.
- _____ with Gemmill, C.L., and Austrian, R. The Metabolism of Tissue Cultures of Walker Rat Sarcoma 319, Bull. Johns Hopkins Hosp., 66: 167-184, 1940.

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PUBLICATIONS (CONT'D)

Gey, George O., Cytological and Cultural Observations on Transplantable Rat Sarcomata Produced by the Inoculation of Altered Normal Cells Maintained in Continuous Culture. *Cancer Research* 1:737, 1941.

with Seager Jones, G.E., and Gey, M.K. 1943. Hormone Production by Placental Cells Maintained in Continuous Culture. *Bull. Johns Hopkins Hosp.* 72:26.

and Firor, W.M. 1945. Observations on the Conversion of Normal Into Malignant Cells. *Annals of Sur.*, 121.

with Gey, M.K., Inui, F. and Vedder, H. 1944. Penicillin Action on Strains of Normal and Cancer Cells. *A.A.A.S. Res. Conf. on Cancer*, 321.

Gey, M.K., Inui, F., and Vedder, H. The Effects of Crude and Purified Penicillin on Continuous Cultures of Normal and Malignant cells. *Bull. Johns Hopkins Hosp.* 77:116-131, 1945.

with Firor, W.M., Phase Contrast Microscopy of Living Cells. *Annals of Sur.*, 125:604.

Hanks, J.H., and Barrett, Rachel. 1948. Retardation of Growth and Metabolism of Normal and Malignant Cells During Continuous Cultivation. *Growth* 12:69.

with Bang, F.B. 1948. A Fibrillar Structure in Rat Fibroblasts as seen by Electron Microscopy. *Proc. Soc. Exptl. Biol. Med.* 69:86.

with Bang, F.B. 1949. Electron Microscopy of Tissue Cultures Infected with the Virus of Eastern Equine Encephalomyelitis. *Proc. Soc. Exptl. Biol. Med.* 71:78.

Gey, M.K., Firor, W.M., and Self, W.O. 1949. Cultural and Cytologic Studies on Autologous Normal and Malignant Cells of Specific in vitro Origin. *Acta. Un. Int. Con. Cancrum.* 6:706.

and Bang, F.B. 1951. Viruses and Cells. A Study in Tissue Culture Applications. I. Cells Involved--Availability and Susceptibility. *Trans. N.Y. Acad. Sci.* 14:15.

with Bang, F.B. 1951. Viruses and Cells. A Study in Tissue Culture Applications. II. Effect of Several Viruses on Cell Types and the Amount of Virus Produced. *Trans. N.Y. Acad. Sci.* 13:324.

with Bang, F.B. and Levy, E. 1951. Some Observations on Host-Cell Virus Relationships in Fowl Pox. I. Growth in Tissue Culture. II. The Inclusion Produced by the Virus on the Chick Chorio-Allantoic Membrane. *J. Immun.* 66:329.

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PUBLICATIONS (CONT'D)

Gey, George O., with Bang, F.B. 1952. Comparative Susceptibility of Cultured Cell Strains to the Virus of Eastern Equine Encephalomyelitis. Bull. Johns Hopkins Hosp. 91:427.

_____ with Glinos, Andre D. 1952. Humoral Factors Involved in the Induction of Liver Regeneration in the Rat. Proc. Soc. Exptl. Biol. Med. 80:421.

_____ with Shooter, R.A. 1952. Studies on the Mineral Requirements of Mammalian Cells. Brit. J. Exptl. Path. 33:98.

_____ 1952. Proceedings of the Research Session on Endocrinologic Aspects of Aging. Edited by V. Korenchevsky. J. Gerontology. 7.

_____ 1953. Discussion in "Problems of Aging" edited by Nathan W. Stock, from 15th Macy Conference.

_____ with Ehrmann, R.L. 1953. The Use of Cell Colonies on Glass for Evaluating Nutrition and Growth in Roller-Tube Cultures. J. Natl. Cancer Inst. 13:1099.

_____ with Scherer, W.F., and Syverton, J.T. 1953. Studies on the Propagation in vitro of Poliomyelitis Viruses. IV. Viral Multiplication in a Stable Strain of Human Malignant Epithelial Cells (strain hela) derived from an Epidermoid Carcinoma of the Cervix. J. Exptl. Med. 97:695.

_____ 1954-55. Some Aspects of the Constitution and Behavior of Normal and Malignant Cells Maintained in Continuous Culture. The Harvey Lectures, Series L. Academic Press Inc., N.Y. 154.

_____ Bang, F.B., and Gey, M.K. 1954. Responses of a Variety of Normal and Malignant Cells to Continuous Cultivation and Some Practical Applications of these Responses to Problems in the Biology Disease. Ann. N.Y. Acad. Sci. 58:976.

_____ with Owens, O.v.H., and Gey, M.K. 1954. Growth of Cells in Agitated Fluid Medium. Ann. N.Y. Acad. Sci., 58:1039-1055.

_____ Shapras, P., and Borysko, E. 1954. Activities and Responses of Living Cells and their Components as Recorded by Cinephase Microscopy and Electron Microscopy. Ann. N.Y. Acad. Sci. 58:1089.

_____ Bang, F.B., and Gey, M.K. 1954. An Evaluation of Some Comparative Studies on Cultured Strains of Normal and Malignant Cells of Animals and Man. Texas Reports. Biol. Med. 12:805.

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PUBLICATIONS (CONT'D)

Gey, George O., with Lo, W.H.Y., Bang, F.B. and Shapras, P. 1955. Rous Sarcoma Virus Infections in the Chick Embryo I and II and The Cytopathogenic Effect of the Rous Sarcoma Virus on Chicken Fibroblasts in Tissue Cultures. Bull. Johns Hopkins Hosp. 97:227.

Shapras, P., Bang, F.B. and Gey, M.K. 1955. Some Relations of Inclusion Droplets (pinocytosis-Lewis) and Mitochondrial Behavior in Normal and Malignant Cells. Symposium on Fine Structure of Cells. E.P. Noordhoff, Ltd., Groningen, 38.

with R. L. Ehrmann, 1956. The Growth of Cells on a Transparent Gel of Reconstituted Rat-Tail Collagen. J. Natl. Cancer Inst. 16:1375.

Discussion, Tissue Culture in the Study of Animal and Human Tumors. 1957. 19:784-785, J. Nat. Cancer Inst.

Factors Influencing Proliferation of Viruses in Normal and Malignant Cells. 1957. Texas Reports No. 3 534-539.

with F. B. Bang, M. Ford and D. Minnegan, 1957. Chronic Infections Produced in Cultured Cell Strains by the Virus of Eastern Equine Encephalomyelitis. Acad. Press Inc., Virology, 4, No. 3.

with H. N. Kent, 1960. Selective Uptake of Serum Globulins and Glycoproteins by Cells Growing in Vitro. Science, 131:666-68.

with M. V. Reed, 1962. Cultivation of Normal and Malignant Human Lung Tissue. Lab. Investigations, 11:8, pp. 638-52.

with J. K. Frost, 1962. Symposium: Cell Modulations, Maturation, and Neoplastic Transformation. Acta Cytologica, 6:399-402.

with C. T. Ling and V. Richters. Chemically Characterized Concentrated Corodice for Continuous Cell Culture (7 C's Solution). Paper presented at the Tissue Culture Association Meeting, Washington, D.C., May 31, 1962.

with R. A. Milck and M. A. Naughton, 1965. Submit Patterns of Rapidly Proliferating Connective Tissues. Biochem. Biophys. Acta 100:623-26.

with M. K. Gey, M. Svtelis, and H. Linden. A Motion Picture Sequence Illustrating the Production of Giant Cells from Hypodiploid Rat Strains NSAT-14pH and -14pL. Presented at the 16th Annual Meeting of the Tissue Culture Association, May 31-June 3, 1965.

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with C. T. Ling. The Role and Interaction of Trace Elements in Cell Nutrition. Presented at the 17th Annual Meeting of the Tissue Culture Association, May 31-June 3, 1966.

with C. T. Ling. Further Studies on the Role and Interaction of Trace Elements in Cell Nutrition. Presented at the 18th Annual Meeting of the Tissue Culture Association, June 4-7, 1967.

-6-

SCIENTIFIC ORGANIZATIONS

REDACTED

REDACTED

REDACTED

REDACTED

REDACTED

PROFESSIONAL CLUBS

REDACTED

INVESTIGATOR AND GRANTEE

Frances P. Garvan Cancer Fund, Chemical Foundation 1929-31.
The International Cancer Research Foundation 1932-37.
National Cancer Institute 1948.
American Cancer Society 1949.
Medical Consultant and Grantee, Committee on Hemorrhagic Fever, Armed Forces
Epidemiology Board 1953.
National Foundation for Infantile Paralysis 1953-55.

AWARDS

Judd Award Cancer Research 1954.
Wein Award Cancer Cytology 1956.

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*Movie making
must be expensive*

SCIENTIFIC RESEARCH FILMS RELEASED:

Gey, G. O., and Lewis, W.H., THE CULTIVATION OF HUMAN TUMORS IN VITRO, Garvan Cancer Research Foundation, Chem. Foundation Inc., N.Y., 1931.

EFFECTS OF IRRADIATION ON TISSUE CULTURES, Eastern Conference of Radiologist, 1936.

Gey, M.K., Stone, H.E., and Owings, J.C., TISSUE CULTURES OF ENDOCRINE ORGANS. American Association of Anatomists, 1938.

Lewis, M.R., Gey, H.K., CULTIVATION OF BLOOD CELL TUMORS OF THE MOUSE. American Association for Cancer Research, 1938.

with Firor, W.H., OBSERVATION ON RAT TUMOR CELLS FROM NORMAL CELLS IN VITRO. American Cancer Society, N.Y., 1945.

with Firor, W.H., and Self, W.O., CYTOLOGICAL BEHAVIOR OF AUTOLOGOUS NORMAL AND MALIGNANT CELLS, A Study with phase contrast microscopy, Int. Cancer Congress, 1946.

Shapras, P., and Bang, F.B., NORMAL AND MALIGNANT CELLS,

(a) STUDIES OF NORMAL AND MALIGNANT RAT CELLS OF ISOGENIC ORIGIN, Phase and Electron Microscope Observations.

(b) OBSERVATIONS ON HUMAN CANCER CELLS, Strains D-1 Re; A. Fi; and HeLa, CINE-PHASE AND ELECTRON MICROSCOPE. STUDIES ON MEMBRANE ACTIVITY AND MITOCHONDRIAL BEHAVIOR, American Cancer Society, 1946-1955.

Shapras, P., Bang, F.B., and Pazomenas, K., ACTIVITY OF MITOCHONDRIA AND PLASMA MEMBRANE IN NORMAL AND MALIGNANT CELLS RAT AND HUMAN, American Cancer Society, 1946-1957.

Gey, M. K., Svtelisl, M., and Linden, H., A Motion Picture Sequence Illustrating the Production of Giant Cells from Hypodiploid Rat Strains NSAT-14pH and -14pL. Presented at the 16th Annual Meeting of the Tissue Culture Association, May 31-June 3, 1965.

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CURRICULUM VITAE

NAME: Chiun T. Ling

LANGUAGES: English, German, French, Japanese, Chinese.

STUDIES AND DEGREES:

Tung Wen College, Fukien, China (Premedical), 1919-21

Nippon Medical College, Tokyo, Japan (Premedical), 1921-22

Nippon Medical College, Tokyo, Japan (Medical), 1922-26
Degree: M.D., 1926Johns Hopkins University, Baltimore, Maryland, 1945-46
Degree: M.P.H., 1946

Harvard University, Boston, Massachusetts, 1946-47 (Research in Nutrition)

Johns Hopkins University, Baltimore, Maryland, 1948-52
Degree: Sc.D. (Biochemistry), 1952

Internship: University Hospital, Tokyo, Japan, 1926-27

Assistant Resident: University Hospital, Tokyo, Japan, 1927-29

Resident in surgery: Red Cross Hospital, Tokyo, Japan, 1929-30

ACADEMIC APPOINTMENTS:

Research Associate in Biochemistry, Johns Hopkins University, 1952-53

Assistant Professor of Biochemistry, Jefferson Medical College, 1953-57

Assistant Professor of Biological Chemistry, University of Michigan
Medical School, 1957-59

Research Associate, Simpson Memorial Institute, University of Michigan, 1957-59

Instructor in Surgery, Johns Hopkins University, School of Medicine, 1959-62

Instructor in Physiological Chemistry, Johns Hopkins University, School of
Medicine, 1959-62Asst. Prof. Surgery; Asst. Prof. Physiological Chemistry, Johns Hopkins University
School of Medicine, 1962-to dateEXPERIENCE:

Over 15 years of experience in biochemical and nutritional research. The following outlines the nature of problems studied and the techniques used.

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Curriculum Vitae - Dr. Chiun T. Ling

Animal experimentation and in vitro studies with tissue materials, on the functions of vitamins and their effects on carbohydrate, protein, and lipid metabolism.

Quantitative micro techniques for the analyses of carbohydrates, proteins, lipids and nucleic acids, coenzyme assays, etc.

Chromatographic and electrophoretic analyses.

Radioisotope work with Co^{60} , Fe^{59} , and C^{14} .

Isolation of leucocytes and determination of thymidine contents in normal and leukemic cells.

Isolation of erythrocyte stromata and studying their chemical composition in normal and pathologic cells.

Five years of experience in teaching medical biochemistry, consisting of:

- a) Formal illustrated lectures 17 - 18 hours each year
- b) Supervision of group experiments by medical students.
- c) Supervision of laboratory work, group conferences and students counseling
- d) Supervision of graduate students

PREVIOUS RESEARCH ACTIVITIES:

Studies on the formation of lipid components of blood cells in bone marrow; incorporation of labeled precursors into components of globoside, phospholipids, and sterol of the cells in vitro with bone marrow from normal, anemic and leukemic animals; changes in enzyme and coenzyme activities; effects of vitamin antagonists in these systems.

PRESENT RESEARCH ACTIVITIES:

1. Studies on the Nutrition of Normal and Malignant Cells in Culture.

A concentrated chemically characterized medium has been developed which maintains MBIII lymphoblasts and Walker Rat Carcino-sarcoma-256 cells in continuous culture. Investigations in progress include:

- a) The influence of intracellular amino acid concentration on the formation of cell proteins and its dependence on amino acid levels in culture media.
- b) Studies on the quantitative evaluation of cell growth in vitro; inter-relationships between cell volume, cell count, cell protein and nucleic acid contents (DNA/RNA ratio).
- c) Effect of the nature of glass walls of culture vessels and their chemical treatment on cell survival, growth and behavior.

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Curriculum Vitae - Dr. Chiun T. Ling

2. Lipid Metabolism of Cells in Culture

Investigations on the Metabolic Interaction between Cholesterol, Phospholipids and Fatty Acids.

3. Other Research Interests

Nutritional requirements of normal bone marrow cells in culture and factors affecting cell differentiation.

Culture requirement of leukemic cells

Immunochemical reactions between tissue cells in vitro

TEACHING ACTIVITIES:

Teaching and conducting experiments with students in nutritional biochemistry as part of the biochemistry course given during one quarter only to second year medical students by the Department of Physiological Chemistry. Students' work includes studies of changes in tissue enzymic activities in nutritional deficiency. Reference - Laboratory Manual for Biochemistry, Section VIII, Dept. of Physiological Chemistry.

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LIST OF PUBLICATIONS AND REPORTS - Dr. Chiun T. Ling

- Ling, C. T., Hegsted, D. M., and Stare, F. J.: The Effect of Pyridoxin Deficiency on the Niacin-Tryptophane Transformation in Rats. J. Biol. Chem., 174:803, (1948).
- Chow, B. F., Barrows, L., and Ling, C. T.: The Distribution of Radioactivity in the Organs of the Fetus or of the Young Rats Born of Mothers Injected with B₁₂ containing Co⁶⁰. Arch. of Biochem. & Biophys., 34:151, (1951).
- Ling, C. T., and Chow, B. F.: The Effect of Vitamin B₁₂ on the Body Composition of Rats. J. Biol. Chem., 198:439, (1952).
- Ling, C. T., and Chow, B. F.: The Effect of Vitamin B₁₂ on the Levels of Soluble Sulfhydryl Compounds in Blood. J. Biol. Chem., 202:445, (1953).
- Ling, C. T., and Chow, B. F.: The Influence of Vitamin B₁₂ on Carbohydrate and Lipid Metabolism. J. Biol. Chem., 206:797, (1954).
- Ling, C. T., and Chow, B. F.: The Effect of Vitamin B₁₂ on Ribose Formation by Erythrocytes. Federation Proc., 13:253, (1954).
- Ling, C. T., and Chow, B. F.: Vitamin B₁₂ and Carbohydrate Metabolism in First European Symposium on Vitamin B₁₂ and Intrinsic Factor. Ferdinand Enke Verlag, Stuttgart, Germany (1956).
- Ling, C. T.: Vitamin B₁₂ and Lipid Metabolism. Abstracts of Papers, Am. Chem. Soc. 134th National Meetings, 57C, (1958).
- Ling, Chiun T.: Role of Vitamin B₁₂ in Lipid Metabolism. Federation Proc. 18:489, (1959).
- Ling, Chiun T., Gey, G. O., and Richters, V.: Seven Cs Solutions: Chemically Characterized Concentrated Corodice for Continuous Cell Culture. Submitted for presentation to the 53rd Annual Meeting of the American Association for Cancer Research, April, 1962.
- Ling, C. T., and Gey, G. O.: The Role and Interaction of Trace Elements in Cell Nutrition. Submitted for presentation to the 17th Annual Meeting of the Tissue Culture Association, May 31-June 3, 1966.
- Ling, C. T., and Gey, G. O.: Further Studies on the Role and Interaction of Trace Elements in Cell Nutrition. Submitted for presentation to the 18th Annual Meeting of the Tissue Culture Association, June 4-7, 1967.
- Copy of paper submitted with application. To be published soon.

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CURRICULUM VITAE

Mary V. Reed

R

REDACTED

REDACTED

REDACTED

Address:

(Business) 601 N. Broadway, Baltimore, Maryland 21205

Education:

	<u>Dates</u>	<u>Degree</u>	<u>Date of Degree</u>
Goucher College		A.B.	June, 1931
Smith College	R	A.M.	June, 1933
Johns Hopkins University School of Hygiene & Public Health		Special Student	-----
University of Maryland (Medical School)	R	Ph.D.	January, 1954

Master's Thesis - The effect of certain triphenylmethane dyes on:
Staphylococcus aureus and Escherichia coli communior

Doctoral dissertation - A comparative study of the metabolism of a
chloramphenicol-sensitive strain and a chloramphenicol-resistant
strain of Escherichia coli

Professional Society Memberships

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Academic Honors - Sigma Xi - Johns Hopkins UniversityTeaching Positions

Graduate Assistant in Bacteriology, Smith College, Northampton, Massachusetts,
1931-1933.

Assistant in Bacteriology, Smith College, 1933-1934.

Instructor in Science and Mathematics, The Knox School, Cooperstown, New York,
1934-39, 1945-46.

Instructor in Science, Mount Vernon Seminary & Junior College, Washington, D.C.,
1939-45.

Assistant Professor in Chemistry and Nutrition, University of Tennessee,
Knoxville, Tennessee, 1946-48.

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Curriculum Vitae - Dr. Mary V. Reed

Instructor in Physiology and Bacteriology, Goucher College, Baltimore, Maryland,
1949-1954, Assistant Professor, 1954-55.

Postdoctoral Fellow, The Johns Hopkins Medical School, Baltimore, Maryland,
1955-1965.

Research Associate, The Johns Hopkins Medical School, Baltimore, Maryland,
1965-to date.

Publications

Reed, M. V., and Genung, E. F.: The Effect of Certain Triphenylmethane
dyes on Staphylococcus aureus and Escherichia coli communior. J. Bact.,
27, 29, (1934).

Reed, M. V., and Genung, E. F.: Titration of Dyes for their Bacteriostatic
Action. Stain. Tech., 9, 117-128, (1934).

Reed, M.V., and Gey, G. O.: Cultivation of Normal and Malignant Human Lung
Tissue. 1. The establishment of three adenocarcinoma cell strains. Lab.
Investigations, 11, 638-652, (1962).

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CURRICULUM VITAE

ROLAND ANTHONY PATTILLO

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Address:

(Business) 601 N. Broadway, Baltimore, Maryland

Education: Blessed Sacrament High School, Beaumont, Texas 1951

B.S. Xavier University, New Orleans, Louisiana 1955.

M.D. St. Louis University School of Medicine 1959. R R

Internship: Milwaukee County General Hospital 1959-1960
Milwaukee, WisconsinResidency: Obstetrics & GynecologyUnder Dr. Richard F. Mattingly, Professor & Chairman,
and Dr. Eleanor Delfs, Professor of Obstetrics,
Department of Gynecology & Obstetrics
Marquette University School of Medicine

Inclusive of Exchange Resident rotations:

Boston Lying-In Hospital, under Dr. Duncan Reid,
Professor & Chairman, Department of Obstetrics & Gynecology,
Harvard University, Boston, MassachusettsGeneral Surgery & Urology, under Dr. Edwin Ellison's
direction, Professor and Chairman, Department of Surgery,
Marquette University School of MedicineGeneral, Gynecologic & Obstetric Pathology, under
Dr. Paul Kimmelstiel, Research Professor of Pathology,
Marquette University School of MedicineAcademic: Instructor, Department of Gynecology & Obstetrics 1964 -
Marquette University School of Medicine

Research Fellow, National Institute of Health 1964 -

Fellow in Surgery, The Johns Hopkins University 1966 -

Hospital Appointments:Staff: St. Joseph's Hospital; Mt. Sinai Hospital
St. Michael Hospital, Milwaukee, Wisconsin

Attending Staff: Milwaukee County General Hospital

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Curriculum Vitae - Dr. Roland A. Pattillo

Family:

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REDACTED

REDACTED

Professional Associations:

REDACTED

REDACTED

REDACTED

Bibliography:

Pattillo, R. A., Foley, D. V., and Mattingly, R. F.: Internal Pelvic Lymphography. American Journal of Obstetrics & Gynecology, 88:110, (1964).

Pattillo, R. A. and San Felippa, P. M.: Carcinoma of the Vulva. Marquette Medical Review, 31:121, (May, 1965).

Pattillo, R. A., Smith, T. E., Delfs, E., and Mattingly, R. F.: Cytologic and Hormonal Activity of the Trophoblast in Explant Culture, American Journal of Obstetrics and Gynecology, 96:337, (1966).

Pattillo, R. A.: The Human Trophoblast--Its Endocrine and Neoplastic Properties. Marquette Medical Review, 32, No. 4, (1966).

Pattillo, R. A., Mattingly, R. F. and Messinger, P. S.: Visicocervicorectal Fistula: A New Gynecologic Entity. Obstetrics & Gynecology, 27:432, (1966).

Continuing Investigation:

Carcinogenic Stimulation of the Rat Placenta - Attempts are being made to create an animal model for choriocarcinoma. The carcinogen 7,12 dimethylbenzanthracene is deposited at the gestational site in early and mid pregnancy in Hooded rats. Hormonal support in the form of estrogen and progesterone is supplied exogenously in order to maintain placental viability. Evidence for neoplastic changes is being sought.

Reactions of the Human Trophoblast as Explant and Transplant- Human trophoblastic tissue obtained sterily from ectopic gestations and sterile mature placentas from Cesarean sections are propagated in roller tube, T-Flask and organ cultures. Studies are directed toward identifying the cell of origin of chorionic gonadotropin and steroid hormones. Comparisons of the differences in behavior of hydatiform mole and chorio-carcinoma as to functional and cytologic characteristics are being sought.

Immunologic factors in normal trophoblast and their variants and similarities in trophoblastic neoplasms are being evaluated by transplantation to thymectomized neonatal rats.

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